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A RECORD OF *AGRIAS AMYDON* (NYMPHALIDAE) FROM COSTA RICA

Two female specimens of *Agrias amydon* Hew. subspecies (?) were taken in Parque Santa Rosa, Guanacaste Province, Costa Rica. This is the first substantiated record of this genus from Costa Rica. *Agrias zenodorus smalli* Miller & Nicolay has been anticipated from Costa Rica and there exists in the literature a supposed sight record from Turrialba, Cartago Province, Costa Rica (Miller & Nicolay 1971. Bull. Allyn Mus. (1):1–5). It was totally unexpected to find *Agrias* in a habitat like Guanacaste where there is a strongly marked dry season in contrast to the usual wet forest habitats in other countries where the genus *Agrias* occurs.

I have compared the specimens with *A. amydon* in the U.S. National Museum, the Carnegie Museum, and the Allyn Museum of Entomology and have found them to be differently marked on the dorsal surface of both fore and hind wings than the comparative material. Description of this *A. Amydon* subspecies is impossible on the basis of only two female specimens and must await more material.

On the basis of the specimens examined in the above mentioned museums and in the literature available to me, *A. amydon* is recorded only as far north as Colombia. These specimens represent a considerable range extension and a new record for Costa Rica. One specimen has been placed in the collection of the Allyn Museum of Entomology, Sarasota, Florida.

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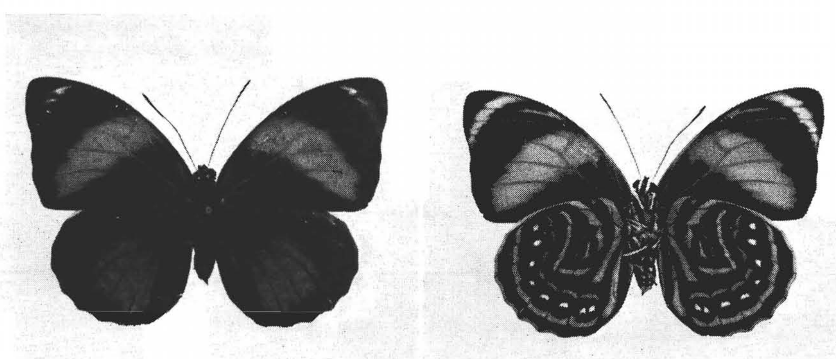

Fig. 1. *Agrias amydon* Hew., subspecies (?), female: dorsal (left), ventral (right). Wingspan = 6 mm.

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ADDITIONAL FUNCTION OF THE LEPIDOPTERAN PROBOSCIS

The most unique part of the lepidopteran body form is the proboscis. This prehensile tube functions mainly as a suction device for nutrient procurement. A second, but minor, function has been observed in a variety of unrelated butterflies and moths

—fluid "pumping." Reports describe these individuals as having an extended proboscis at a moisture source and simultaneously voiding fluid from the anus (Clench 1957, Lepid. News 11:18–21; Roever 1964, J. Res. Lepid. 3:103–120; Hessel 1966, J. Lepid. Soc. 20:242; Jobe 1977, Entomol. Gaz. 28:8). Interpretations of this behavior have been speculative generalizations. Personal observations have revealed a third—also minor—function of the lepidopteran proboscis.

A female *Atalopedes campestris* (Boisduval) (Hesperiidae) was found floating with fluttering wings on the water surface of a wading pool in a residential backyard in Austin, Travis Co., Texas. The skipper did not appear to be severely injured, probably due to a relatively short period of partial submergence. Nevertheless, the scales were quite wet.

Subsequent observation of this individual revealed that it was rapidly probing the scaly covering of the anterior part of its body by continued manipulation of its proboscis. Most of the probing involved ventral and lateral scales of the thorax. A definite color-lightening effect was observed. This change in coloration would indicate a reduction in the amount of water which had a plastering effect upon the scales.

Decrease in amounts of water present among the scales could result from two effects of probing by the proboscis. Simple separation of adjacent matted scales by mechanical movement of the proboscis would increase evaporation rates because of an increase in scale surface area exposed to air. Also, water could be and probably was being physically removed by suction via the proboscis.

The primary behavioral regime enlisted in this task would involve an activity related to previous function—suction action of the proboscis. Therefore, physical removal of water should be regarded as the initial function upon which natural selection acted. Enhancement of evaporation rate by scale separation initially was an ancillary result of this behavior. Such enhancement could be further increased by selection favoring rapid random movements as opposed to sucking up water at one spot and relying on capillary pressure to maintain a continuous film of water.

Although this behavior was observed to function to remove water from scales following partial immersion in water, it could also function to remove moisture from rain (dew?) on butterflies roosting in exposed sites. Removal of water may be important for several reasons. Flying ability may be reduced if water is present in sufficient amounts to appreciably increase the weight of the insect. A matted water/scale film present on the body surface may interfere with spiracular inhalation or favor development of pathogenic populations. Even if most air were inhaled via abdominal spiracles, removal of thoracic surface water may decrease abdominal and wing surface water via capillary action.

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